When Fuel Cost Exceeds Payroll: A New Paradigm for Efficient Law Enforcement

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Abstract

The purpose of this paper is to determine if State Law Enforcement using inefficient vehicles to patrol work zones is a sustainable strategy over the long term future with ever rising and unstable fuel costs and diminishing tax revenue. Research shows the viability of a variety of unique and different strategies that should be considered by law enforcement using technology and non-traditional equipment to reduce costs while maintaining efficiency. The specific problem relates to the acceptance of this new strategy by law enforcement. Through the use of questionnaires the project will show the benefit of these additional strategies. The research clearly shows that there are "out of culture" procedures and more efficient equipment that can be used to decrease the overall cost of patrol without diminishing service to the public.

Introduction

Over the last several years the Florida Highway Patrol (FHP) has been attempting to manage an agency budget that is constant and planned with the exception of one item, fuel costs. Are there solutions to the periodic cost overruns and the associated fuel conservation plans that are in reality ineffective? Are we prepared for the next inevitable international crisis that might dramatically curtail an adequate supply of fuel for patrol purposes? Can we change the culture of state law enforcement agencies that continues to hold on to the idea that they must purchase and maintain large fleets of inefficient vehicles while fuel costs remain erratic and unpredictable and tax revenues dwindle. Can we transition to patrol vehicles that may initially cost more but that will decrease the demand on the fuel budget by half?

State legislatures facing a declining economy and a declining tax base will have to make decisions that will determine if the service level expected by the public is maintained or if staffing reductions are necessary due to the inability to fund the fuel costs associated with those positions.

Before those funding decisions are forced upon us we should consider making changes to the culture of state law enforcement that will allow growth in the agency, maximized service to the citizens and visitors of the state and expand our capabilities while using ever fewer tax dollars to our benefit.

Literature Review

Challenges

The volatility of crude oil prices and gasoline availability has created new challenges for law enforcement leadership who attempt daily to provide proactive, effective patrol that ensures the service to the citizens of their State, County or Community that is expected of their law enforcement organization. Agencies developing budget projections have found it nearly impossible to adequately plan for gas prices that fluctuate dramatically and unexpectedly over time. In November, 2004, the average price for a gallon of gasoline in Orlando, Florida was $1.45. Less than twelve months later and in the next budget year the price of gasoline jumped to more than $3.00 per gallon as a result of Hurricane Katrina striking the oil producing areas of the Gulf of Mexico, causing the supply of fuel to diminish dramatically. A five year budget projection could never have predicted or anticipated a doubling of fuel cost over that short period of time. Budget analysts for the Florida Department of Highway Safety and Motor Vehicles (DHSMV) show that the rise in fuel prices during the last fiscal year, 2007 – 2008, cost the Florida Highway Patrol (FHP) therefore the tax payers of Florida, an extra $2,186,716.54 in unanticipated and unbudgeted fuel expense. This extra expense was in addition to the $11 million plus already budgeted just for fuel. On the average, the price of gasoline has jumped at least $.20 a gallon each year since 2002 not counting the sudden and unexpected upward spikes in the per gallon price like those experienced during the first half of 2008 (Bogo, 2008).

It is not just the cost of gasoline that is difficult to predict. The United States imports 20 per cent of our crude oil from Canada and Mexico. More than 75 per cent of the remaining imports come from the Organization of Petroleum Exporting Countries (OPEC). Current world political situations indicate that a steady supply of crude oil for refining to gasoline is as unpredictable as the price. According to a 2002 BBC News online article, OPEC has been working toward implementing another oil embargo similar to the one instituted in 1973 to suppress the influence and support of Israel in the region (Arnold, 2002). The United States imports 12 per cent of its oil from Venezuela. As late as May, 2008 Hugo Chavez, President of Venezuela, was attempting to organize an oil embargo against the United States after Exxon Mobile successfully won court orders to freeze $12 billion in Venezuelan oil assets. According to Robert Fanney of the Associated Press, with world oil supplies running very tight and China, India, and Middle Eastern Countries taking larger and larger portions of world oil assets, any disruption by Venezuela would place an even greater strain on already stretched supplies (Fanney, 2008).

The wildly fluctuating oil prices and unpredictable fuel supply leaves law enforcement agencies with two alternatives to handle this problem; drastically cut proactive/preventive patrols or learn from and adapt to the prospect of dwindling gas supplies at an ever increasing, unstable price. Not since the time of the oil embargo in the 1970's and the supply shortage of the early 1980's has traditional law enforcement faced a more serious threat than rising fuel prices. How does law enforcement then, plan to address these problems and can the current law enforcement culture change and adapt to the conditions that lie ahead? The Emergency Management and

Response Information Sharing and Analysis Center (EMR-ISAC), a division of the Department of Homeland Security, published in their June 26, 2008 Infogram a list of changes that emergency response agencies are making to deal with the high fuel costs and diminishing operating funds. The action list includes requiring officers to pair up in patrol cars, parking squad cars at high-visibility locations for ten minutes each shift hour and curtailing the practice of allowing officers to take police vehicles to their homes (EMR-ISAC, 2008).

Past experience shows that when preventive patrol is decreased, crashes, including fatal crashes, increase as do most preventable crimes. Assistant Commissioner Earl Sweeney of the New Hampshire Department of Public Safety notes that drastic cuts in patrol and such strategies as assigning two officers to formerly one officer units and limiting patrols to a restricted number of gallons of gas per shift should come as only a last resort after all other alternatives have been tried and failed to plug the gaping hole in the department's budget. (Sweeney, 2004)

Fees

What then are the other alternatives to downsizing patrol and limiting gas consumption? MSN Money Central reports that two cities in Georgia have passed local legislation to add fees to traffic citations to bolster the agencies fuel budget. Holly Springs, Georgia has added a $12.00 fuel fee to each traffic citation issued by their police department. The Atlanta, Georgia City Council, facing a $140 million budget shortfall and the prospect of cutting 300 police officers and firefighters, voted 13-0 to add a fuel surcharge to each traffic citation. Agencies from Key West, Florida to Los Angeles County, California have made inquiries regarding the implementation of the surcharge (MSN MoneyCentral Staff, 2008).

Technology

Technology could play an important role in reducing a law enforcement agencies dependency on traditional patrol. The Catawba, North Carolina, County Sheriff's Deputies have access to field based reporting, allowing the deputy to reduce the number of trips to headquarters. Deputies are allowed to begin their shifts in their zones instead of reporting to headquarters for daily briefing and are turning toward more of a community policing model to save fuel (Bickel, 2008).

Many other technologies are available now to help reduce the amount of fuel used for patrol but maintain an enforcement presence as a deterrent. Enforcement of traffic signals using automatic cameras to detect and document violations and identify violators is becoming more prevalent in cities across the nation. These remote cameras, with appropriate warning signs posted, decrease the violation rate as well as the frequency of crashes at the intersections where they are installed. A study conducted by the US Department of Transportation shows that in cities where the red light cameras are installed the violation rate decreases. Scottsdale, Arizona had a 62 per cent reduction in red light violations, Los Angeles, Ca. saw a 75 per cent reduction, Washington, D.C. a 56 per cent decrease in violations and Jackson, Mississippi an 83 per cent reduction in red light violation (Maccubbin et al., 2002). Each city had a

corresponding reduction in crashes related to red light running. The same study indicated that citizen surveys taken in cities where red light enforcement cameras were installed gave the programs a 60% to 80% approval rating (Maccubbin et al., 2002).

As a result of the success of the red light cameras, many states are now considering automated speed enforcement methods using photo radar. Photo radar works in a manner similar to the red light cameras. Photo radar is mounted near traffic lanes where the speed violations are occurring. When the driver passes into the range of the radar significantly over the speed limit a photo is taken of the license plate and the information related to the violation, date, time and location is documented in the computer. A ticket is generated and mailed to the owner of the vehicle. Automatic speed enforcement systems are commonly used in Britain and are receiving widespread community approval (Montecarlo, 2005). The Evening Standard, a London, England newspaper, quotes several London residents requesting the installation of the speed enforcement cameras in their neighborhoods. The cameras are credited with significantly reducing crashes in the areas where they are installed (Williams, 2002). These systems are accurate, reliable, objective, and relatively inexpensive. The systems also do not use the fuel a police officer in a patrol car would use enforcing the same laws (Turner & Polk, 1998). The automated systems also maintain the flow of funding normally generated by law enforcement that is essential to the operation of cities and police agencies (EMR-ISAC, 2008).

The Florida Highway Patrol (FHP) has a flight section that conducts aerial traffic enforcement as one of its primary duties. Routinely, FHP pilots clock vehicles through a delineated quarter mile using a certified stop watch. The number of seconds the vehicle uses to traverse the measured distance (1320 feet) is converted into the average speed of that vehicle over the quarter mile. The pilot then directs ground units to the vehicle clocked and the stop is made. This process is productive in most cases but expensive using pilots and an aircraft burning aviation fuel, nearly $5.00 per gallon, at a minimum of 10 gallons per hour. An article written by Jeff Wise in Popular Mechanics Magazine from the October, 2007 edition describes five different unmanned aerial vehicles (UAV'S) that are being used in civilian applications though initially developed for the military. These UAV's range in size from six to thirty foot wingspan and the capabilities to remain airborne from just over an hour to days at a time. UAV's are generally less expensive to purchase and maintain and the training associate with their operation is much less stringent than that of a commercial pilot. UAV's equipped with remote cameras are currently being launched from the side of the road and used for extended surveillance of potential criminal activity (Wise 2007). For the price of one small manned aircraft several UAV's with the necessary ground support equipment could be purchased and placed into service doing many of the same functions as a manned aircraft. Quoting Mr. Rich O'Lear, Vice President for Unmanned Aerial Systems at Lockheed Martin, "Technology is not the limitation. It's the ability of people to conceive of ways to use the technology" (Wise, 2007).

Alternate Fuels

In the late 1970's the United States obtained a large portion of its imported oil from Iran. When the American hostages were taken at the United States Embassy in

Tehran, and the Iranian government changed, the United States again suffered due to the supply shortages caused by the political upheaval in another country. Due to this fuel shortage many police agencies began converting their vehicles to alternate fuels which at that time was mainly propane. Propane provided sufficient power and reliability, burned cleaner and was cheaper and more abundant. However, the conversion of gas fueled vehicles to run on propane was a significant aftermarket expense and the new propane gas tank was bulky taking up too much trunk space. These vehicles were maintained until the cost of fuel went down and the supply of fuel went up making the conversion of a vehicle to propane too expensive to maintain. Even with the price of gasoline peaking at over $4.00 per gallon, alternate fuel conversions are expensive and require many years of operation to recoup the expense of conversion. A 4.6 liter V-8 engine in a Crown Victoria averages over $13,000.00 per vehicle to convert to compressed natural gas (Yborra, 2008).

Other alternative fuels currently in the research stage may soon be available to ease the dependency on petroleum based products. Corn based ethanol will be replaced with second generation bio fuels that include prairie grass and sawdust based ethanol and bio diesel made from algae. Ethanol additives do have a down side though. The current production of ethanol has increased food prices and the amount of potentially climate changing C02 gases released into the atmosphere in vehicle emissions. The 10 per cent ethanol additive to regular unleaded gasoline also reduces gas mileage by as much as 15 per cent (Bogo, 2008). While manufacturing vehicles to run on ethanol is easy, there are roughly 60 models for 2008 that can accept E85 fuel, biofuel companies have yet to prove they can scale up to meet the challenge of the increased demand. It is estimated that the emerging biofuel companies will not have sustainable production capability for at least three more years (Bogo, 2008). Thirty-six billion gallons of renewable fuel similar to ethanol must be produced each year beginning in 2022 to keep up with the demand for this resource. (Bogo, 2008). David Tillman, an ecologist from the University of Minnesota estimates the U.S. can sustainably generate about 500 million tons of dry biomass annually; enough to produce 40 to 50 billion gallons of ethanol, displacing a quarter of today's gasoline consumption (Bogo, 2008).

The development of efficient high performance batteries, fuel cells, hydrogen, and hybrid technology are just a few of the concepts being developed to transition from and ease our dependence on non-domestically produced petroleum products.

Alternative Vehicles

Anecdotal evidence suggests nearly all police agencies in the United States are driving Ford Crown Victoria Police Interceptors, Chevrolet Impalas, Dodge Chargers, a sport utility vehicle manufactured by one of these companies or some minor variant of these vehicles. Some progressive agencies have their command staff driving more fuel efficient non-pursuit vehicles that may initially cost more but within a short time recoup any extra funds expended through fuel cost savings. Altamonte Springs Police Department in central Florida obtained Toyota Prius' and has assigned them for use by their command staff. Other vehicles like the Volkswagen Passat and Volvo C-90's are used in Europe where fuel cost are double that of the United States and the need for

dependable high performance vehicles are at a premium. The Passat for example has a top speed of 150 miles per hour and consistently achieves gas mileages of over 29 miles per gallon (Richard, 2006).

The Wiltshire England Police have purchased and are using the Lexus GS 450h Hybrid for law enforcement and traffic patrol. After a successful trial by Hampshire Police in August 2006, Wiltshire Constabulary was the first police force in the United Kingdom to incorporate the Lexus Hybrid into its fleet (Richard, 2006). The GS 450h is a high performance hybrid, combining a 3.5-liter V6 gasoline engine with high output electric motors. These systems combine to provide a maximum output of 341 hp achieving 0 to 62 mph acceleration in 5.9 seconds. The performance matches conventional V8 gasoline engines but has significantly lower fuel consumption getting 30 miles per gallon during regular patrol. (Richard, 2006).

Also under development by Carbon Motors is a specific use police vehicle that the developers claim will have a top speed of 155 miles per hour running on a 300 horse power 3.0 liter forced induction diesel engine. The developers claim the police service only vehicle will have a life expectancy of 250,000 miles, go from 0 to 60 in 6.5 seconds and get a combined city/highway mileage of 28-30 miles per hour (Carbon Motors, 2008). Transitioning from vehicles that get less than 18 miles per gallon to vehicles that consistently maintain averages of near 30 miles per gallon would immediately cut the fuel budget by at least one third.

Short Term Solutions

The Kentucky State Police (KSP) conducted Operation Safe C.H.E.C.K. (Concentrated Highway Enforcement Checkpoints in Kentucky) in July and August 2008. The purpose of the operation was to reduce the number of roving patrols, while increasing high visibility enforcement, in an effort to decrease motor vehicle crashes while conserving fuel. The operation netted hundreds of arrests and saved KSP 3,770 gallons of fuel and nearly $14,000.00 in fuel costs. This was a stop gap measure attempting to find a temporary solution to an ever expanding fuel budget deficit problem (Bray, 2008).

State Police and Highway Patrol agencies are finding there are few easy solutions to the fuel cost crisis. The Montana Highway Patrol (MHP) has thousands of square miles to patrol and appear to have limited options other than buy fuel no matter what the cost. In June, 2008 MHP's fuel budget was in a $340,000.00 deficit. To reduce this deficit, MHP considered buying Chevrolet Impalas in an effort to replace the Fords but testing found both vehicles achieve nearly the same gas mileage (Gouras, 2008). Hybrids tested did not have the performance needed to patrol Montana. Motorcycles were also not considered as viable patrol vehicle due to the harsh winter weather. Ron Ruecker, President of the International Association of Chiefs of Police, said "there is only so much the agencies can do to save money. State legislatures will ultimately have to fork over more money for gas, or see fewer patrolmen on the road" (Gouras, 2008).

Are there solutions to the problem of rising gas prices and potential restricted fuel supply other than watching while agency fuel cost exceed payroll?

Method

With current fuel prices and availability in constant fluctuation, the need for good planning to cope with these issues is essential. The intent of this research project was to determine the current readiness of state law enforcement agencies, like the Florida Highway Patrol, to adapt and respond to significant fluctuations in fuel cost and fuel supply and determine what plans were being made to use other technologies, alternate fuel and non-traditional vehicles to continue services at the level citizens expect. The survey was designed to determine the effectiveness of widely published and implemented fuel conservation measures generally put in place from March to September 2008. The survey queried the agencies to determine if there were any substantive plans or projects that would change the current culture of patrol to a less fuel cost/fuel supply volatile policing. The agencies considered for survey include those in other states with similar statewide jurisdiction and function with responsibility for large geographical service areas. Forty nine state agencies were identified for the survey.

The data was collected from survey responses based on questions formed from the Emergency Management and Response – Information and Analysis Center (EMR-ISAC) suggestions to emergency responders on fuel conservation and service maintenance. Survey questions were also taken from published conservation measures outlined by the command staff of the Florida Highway Patrol. Questions were also developed to determine if any plans were in progress or under development for the increased use of technology such as remote enforcement cameras, converting vehicles to alternative fuels such as compressed natural gas, propane and diesel or the purchase of non-traditional vehicles such as hybrids and fuel efficient midsize vehicles.

The confirmed inherent limitation associated with this type research is ensuring the comparisons are similar enough to be valid. Each law enforcement agency, though generically similar have different political and logistical issues that alter the comparability of the information and could skew the results.

Results

Fuel Conservation Surveys were sent to forty nine state police/highway patrol agencies one for each state with such an agency. Hawaii does not have a state law enforcement agency. Thirty six agencies responded for a survey return of seventy four percent. States from each region of the country responded to the survey request. Surveys were received from the more densely populated north eastern states of New Hampshire, Vermont, Massachusetts, Connecticut, New York, New Jersey, Delaware, West Virginia and Maryland. South and south eastern states responding included Arkansas, Florida, Georgia, Louisiana, Mississippi, North Carolina, South Carolina, Texas and Virginia. Mid-western states completing the survey were Illinois, Indiana, Kansas, Kentucky, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio and Wisconsin. Western states include Arizona, California, Colorado, Montana, New Mexico, Wyoming and Alaska. These agencies have sworn populations ranging from 142 Troopers in North Dakota to 7,310 Patrol Officers in California. The thirty six responding agencies have in use a total of 34,795 law enforcement vehicles of various

makes and models. The vast majority of those vehicles in use, seventy nine percent or 27,478 vehicles are Ford Crown Victoria Police Interceptors. 2,269 Chevrolet Impalas make up seven percent of the total vehicle census reported. 1,507 or four percent are Dodge Chargers and ten percent of the total or 3,541 “other” vehicles include a mix of Chevrolet Tahoe’s, Trail Blazers, and Suburban’s, Dodge Magnums, Ford Expeditions and Explorers, Harley Davidson Motorcycles and miscellaneous pickup trucks used for enforcement purposes.

The remaining twelve questions of the survey addressed fuel conservation policies of the responding agencies and their future plans, if any, to stabilize the budgetary issues associated with unexpectedly rising fuel costs. The first of these questions asked if the agency banned excessive idling to conserve fuel. Forty seven percent of the responding agencies had policies against excessive idling and fifty three percent did not have any policy restrictions on excessive idling. A second question inquired if their agency paired up two troopers in single trooper patrol units to conserve fuel. Six percent used two person patrol vehicles as a fuel conservation method. Ninety four percent of the agencies did not pair officers up in vehicles. The survey asked the agencies if they required their patrol officers to park in high visibility areas during the patrol shift to conserve fuel. Eight percent employed this measure as a fuel conservation policy and ninety two percent did not. The agencies were asked if they purchased lower priced bulk fuel for use over an extended period time. Fifty three percent did make bulk fuel purchases at discounted prices. Forty seven percent could not or chose not to. The agencies were asked if they were taking any actions to supplement their fuel budgets through a traffic citation “fuel surcharge.” One hundred percent of the respondents were not considering the surcharge. The survey also asked if the agencies considered charging nonresident fees for law enforcement services when responding to crashes; three percent were considering such charges and ninety seven percent were not. The final series of questions addressed considerations of nontraditional aspects for maintaining an enforcement presence but reduce the amount of fuel consumed. Asked if their agencies were considering remote speed enforcement cameras and/or remote traffic signal cameras to save fuel, eleven percent indicated they were considering or participating in such a program, eighty nine percent were not. One hundred percent of the responding agencies indicated they were not considering converting their gasoline powered vehicles to compressed natural gas or propane. Six percent expressed that they had policies to use more frequent equipment/sobriety checkpoints to conserve fuel; ninety four percent do not use checkpoints for fuel conservation. Questioned if their agency would consider spending more money initially for a vehicle with significantly better fuel mileage thirty three percent indicated they would consider spending more on fuel efficient vehicles and sixty seven percent would not. The final question was in a similar vein but specifically addressed smaller nontraditional vehicles. Fourteen percent said they would consider nontraditional vehicles as a fuel conservation measure and eighty six percent indicated they would not make that consideration.

Discussion

At the conception of this research project fuel prices were reaching all time highs topping $4.00 per gallon all across the nation. Policies were rapidly developed by the Florida Highway Patrol and other agencies to try and reduce fuel consumption during patrol without limiting patrol or increasing response times to calls for service. In June 2008 the Department of Homeland Security Emergency Management and Response – Information Sharing and Analysis Center (EMR-ISAC) developed and published a series of recommendations that if implemented they claimed could conserve fuel. Reading newspaper and magazine articles from across the nation it was clear that most agencies had no viable options available to them other than cut services or request and receive additional funding to supplement their fuel budgets. Though fuel prices have dropped to nearly half the amount of May 2008, the national and state economies are now straining under the weight of recession and decreasing tax revenue. It is clear that if fuel prices spike again during this recession the ability of governments to supplement the state's fuel budget would be limited, leaving cuts in service as the only option available.

The research indicated clearly that some of the recommended fuel conservation measures suggested by EMR-ISAC were not embraced by law enforcement nor were they effective. Ford Crown Victoria Police Interceptors, Dodge Chargers, Chevrolet Impalas and most other pursuit rated vehicles used in state law enforcement consume two plus gallons of fuel per hour at idle. Idling is a necessary part of law enforcement allowing the officer to be in a warm safe place out of the elements in cold climates and in a cool safe place in the warmer parts of the country. Idling keeps all the electronics running properly in the modern police vehicle. Even though forty seven percent of the agencies surveyed had a policy restricting "unnecessary idling" none considered it a viable or efficient fuel conservation method. EMR-ISAC also recommended assigning two officers to historically one officer vehicles to conserve fuel. Though six percent of the respondents put two officers in patrol vehicles for fuel conservation purposes, another eight percent routinely use two officer units on the midnight shift not to conserve fuel but for officer safety purposes. Those agencies still maintained single officer units for the other shifts. The two officer midnight shift was not common to a specific region of the country but common to the more urban states nationwide. Other agencies noted that ride sharing was mandated while traveling to training details and meetings. Parking marked patrol vehicles in high visibility areas was policy for only eight percent of the agencies and was deemed only as effective as the similar unnecessary idling policy.

Bulk fuel purchasing was noted by fifty three percent of the respondents as the best method to control rising fuel prices and maintain fuel supply. The majority shared fuel storage facilities with the state's transportation departments which had the capability to store large supplies of fuel for an extended period of time. More than a majority of the states which had access to a bulk fuel supply still used fleet credit cards to purchase fuel commercially mainly for the convenience.

Another approach to fuel budgeting issues was the addition by several cities and some counties of a fuel surcharge added to the fine amount of traffic citation and a non-resident fee for crash investigations. None of the thirty-six respondents had implemented the fuel surcharge on traffic citations and only one agency was

considering charging non-residents a fee for emergency responses or crash investigations. Though legislative action was needed to validate these fees there appeared to be no support from the state agencies for their implementation.

None of the state agencies that issue take home cars felt that curtailing the practice would conserve fuel. Most felt that take home cars were necessary to ensure more rural areas of their state would have adequate law enforcement coverage with manageable response times.

Eleven percent of the responding agencies has implemented or is supporting the implementation of remote traffic signal enforcement cameras and/or remote speed enforcement cameras. Though these agencies have cameras installed for speed and traffic signal enforcement they did not consider them fuel conservation measures but for traffic safety purposes only.

It is clear from the research that the vehicle of choice at this point in time is the Crown Victoria Police Interceptor (CVPI). However, more than a third of the agencies in the survey indicated they were open to nontraditional vehicles, smaller sedans with foreign nameplates, and alternative vehicles including hybrids if these vehicles were approved for pursuit by a recognized authority like the Michigan State Police. A few of the surveys also indicated that the vehicles had to be "certified by the manufacture as a pursuit vehicle." Research found there are few differences between a civilian Crown Victoria and a Police Interceptor. Bid sheets issued by the Florida Sheriff's Association (FSA) request "a CVPI have the manufactures standard engine, V-8, minimum 250 horsepower, oil cooler, alternator, battery and cooling package. The CVPI should have the manufactures standard automatic transmission and the manufacturer's standard axle ratio for pursuit vehicles. In addition, they must come with four wheel anti-lock brake system, speed rated tires, a certified speedometer and a full size spare tire." The Florida Highway Patrol also requires the optional fire suppression system in their bid requirement. The most significant difference between the civilian Crown Victoria and the CVPI pursuit vehicle is in the programming of the Power train Control Module (PCM), the vehicles motor control computer. The civilian Crown Victoria is programmed with a top speed of just over 100 miles per hour where a CVPI has a top speed, depending on the year of 120 to 130 miles per hour. Alternative vehicles such as high horsepower hybrids and more compact high fuel mileage vehicles could easily be ordered with the necessary equipment to become "pursuit certified." A partial fleet of vehicles that have a top speed matching or surpassing a CVPI that are as safe and achieve fuel mileage standards of 28 miles per gallon could immediately cut an agencies fuel cost requirements in half. The extra cost of the vehicle would be offset during the service life of the vehicle by the fuel cost saving and the higher resale value of the vehicle at auction or when traded. The FSA bid cost for a CVPI is $19,918.00. The CVPI's purchased by the Florida Highway Patrol have an additional $3,995.00 fire suppression option added to the total cost of each vehicle. A Nissan Maxima listed on the FSA bid sheet for example has nearly the same interior room, higher top speed and greater gas mileage and cost just over $25,000.00.

Other issues associated with traditional patrol vehicles could very well be their availability. Federal money is keeping two of the three main suppliers of patrol vehicles in business. A deepening recession and faltering economy makes a failure in the traditional patrol vehicle supply line a possibility.

Using specialized vehicles to improve agencies overall fuel consumption rating should also be considered. Troopers or officers assigned to mainly interstate or high speed roadways could be assigned more high performance fuel efficient vehicles. Troopers assigned to urban areas responding to numerous calls for service each shift could be assigned a high performance hybrid.

As a side note, several agencies in response to the survey question regarding the agencies consideration to purchase nontraditional vehicles mentioned the prototype law enforcement specific vehicle to be manufactured by Carbon Motors of Atlanta, Georgia. The Carbon Motors E-7 will be manufactured with a steel tubular frame covered by carbon fiber panels and powered by a turbo diesel motor. Its success not only depends on its reliability and affordability but also on the desire by agency administrators to prevail against current police culture.

Agencies vehicle purchase choice is generally determined by the states purchasing procedures, bid specifications, price, and vehicle availability. There is a trend toward this decision process becoming more limited and political. As an example, Mayor Michael Bloomberg of New York City recently ordered all taxi cabs in the city to be converted to hybrid vehicles within a specified time period. Thousands of Crown Victoria Taxis are fast becoming Ford Escape Hybrid Taxis and Toyota Camry Hybrids. Though Mayor Bloomberg's executive order was recently temporarily put aside by the courts there is the potential for local and/or national governing bodies to have standards placed on all vehicles including law enforcement vehicles that would make the current fleet obsolete and potentially illegal. The notion that law enforcement will continue to be exempt from ever more stringent federal vehicle emission and fuel consumption standards is not sustainable. Add to that the prospect of an international incident that could easily cut our national supply of fuel suddenly and without warning we quickly see a long list of problems agencies will have maintaining service using a fleet of less than efficient vehicles.

Each state has in their budget process funds allocated for law enforcement vehicle purchases and in most cases a separate fund for fuel purchases. The volatile side of the funding issue is fuel costs and supply. The unpredictable nature of fuel costs can be mitigated somewhat by moving away from traditional patrol vehicles to vehicles that perform equally well if not better, are as safe or safer and much more fuel efficient. The initial cost may be higher on the vehicle funding side but over the life of the vehicle the difference in fuel expenditures benefits the vehicle. By using more efficient vehicles suddenly rising fuel costs do not have the same devastating effect on the budget as instability in fuel cost has today. As an agency it comes down to two factors. Can you stabilized your vehicle operation expenditure by spending more on a vehicle that uses less gas or continue to procure vehicles that are less efficient and leave the agency more susceptible to wildly fluctuating, unpredictable fuel costs. The stability is in the vehicles purchased.

Recommendations

It is clear from the surveys returned that all thirty six respondents have varying needs and considerations regarding the capabilities of their law enforcement vehicles. What vehicle or types of vehicles that works well for the Florida Highway Patrol may not be a functional vehicle for the Alaska State Troopers. Because of the issues raised in the discussion portion of the paper it has become necessary to look at the future of patrolling at the state level differently without a "business like we've always done it" attitude. I recommend further research in the following areas;

- Purchase of discounted or priced stabilized bulk fuel. Can fuel be purchased then distributed through common retailers for the life of the contract?

- Pursuit rated vehicles. Are there more fuel efficient vehicles that are safe, perform well and meet the standards set by traditional law enforcement mandates?

- Remote camera enforcement techniques. Several states use remote speed enforcement cameras in work zones. Is this technology efficient enough to take the place of a speed enforcement detail on the highway to save fuel?

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APPENDIX A

SURVEY

Electra Theodorides-Bustle
Executive Director

2900 Apalachee Parkway
Tallahassee, Florida 32399-0500
www.flhsmv.gov

A SAFER FLORIDA
HIGHWAY SAFETY AND MOTOR VEHICLES

December 18, 2008

Dear Survey Participant,

As a member of the Florida Criminal Justice Executive Institute's Senior Leadership Program Class 13 we were given the assignment to complete a research paper on a subject pertinent to issues confronting current law enforcement executives. The Florida Criminal Justice Executive Institute Senior Leadership Program provides leadership and research training to current and future law enforcement and corrections executives from throughout the State of Florida.

I have been conducting research into the alternatives to the current methods used by law enforcement agencies to maintain service to citizens during times of spiking fuel costs and/or fuel shortages. Current budgetary constraints and the economic downturn also limits what options agencies have to continue to purchase fuel when prices increase as much as 75% or more in a short period of time as they did in the spring of 2008. Though fuel prices are not nearly as significant an issue as it was six months ago, the world political climate and the local economic situations has made fuel conservation and budgeting for fuel a topic for consideration.

The survey can be completed and emailed to me or faxed. I will need your survey response by January 10, 2009 to maintain the timelines established by the Institute. There is a comment section after each question. Please feel free to comment about your agencies plans to combat spiking fuel cost (if any) and reference any long term agency plans to reduce dependency on unstable fuel prices and supply.

Thank you for your participation in this survey. The research article that includes this survey will be published in May 2009. Again, thank you for your promptness and your participation.

Sincerely,

Robert S. Duncan, Captain
DeLand District Commander
Florida Highway Patrol

Email: robertduncan@flhsmv.gov
Fax: 386-736-5379
Phone: 386-736-5350 extension 107

FUEL CONSERVATION SURVEY

Agency Name:_____

Number Sworn Members:_____ Contact Person:_____

Telephone Number:_____ Email Address:_____

During the first half of 2008 fuel prices rose to more than $4.00 per gallon in a short period of time. Police agencies around the country implemented various conservation measures to save fuel and tax dollars. Please answer the survey below with consideration for the actions taken by your agency during the height of the price spike. Include any pertinent comments that apply. **Please return the completed survey on or before January 10, 2009 by email to robertduncan@flhsmv.gov or fax 386-736-5379. I can be contacted at 386-736-5350 extension 107.** Thank you.

1. Type and number of pursuit vehicle used in your agency:

   Ford Crown Victoria Police Interceptor:_____
   Dodge Charger:_____
   Chevrolet Impala:_____
   Other Vehicles: (Name and Number)_____

2. Manufacturers of the most commonly used patrol vehicles listed above state that these vehicles consume right at two (2) gallons per hour when idling. Do your agencies' fuel conservation measures ban excessive idling? **Yes** **No**
   Comment: _____
   _____

3. Does your agency require officers to pair up in single patrol cars as opposed to remaining in single officer vehicles? **Yes** **No**
   Comment: _____
   _____

4. Does your agency require patrol cars to park in high-visibility locations for any mandated period of time each hour? **Yes** **No**
   Comment: _____
   _____

5. Does your agency purchase bulk fuel supplies for use over an extended period of time at discounted prices? **Yes** **No**
   Comment: _____
   _____

6. Various agencies across the country added a "fuel surcharge" fee to traffic citation fines to help offset the rising fuel costs. Does your agency consider this added fee a viable solution to high fuel costs? **Yes** **No**
   Comment: _____
   _____

FUEL CONSERVATION SURVEY

7. Does your agency charge a "non-resident fee" when responding to traffic crashes?
   Yes **No**
   Comment: _____
   _____

8. If applicable, has your agency curtailed the practice of allowing personnel to take patrol vehicles home in an effort to conserve fuel? **Yes** **No** **N/A**
   Comment: _____
   _____

9. Has your agency, through the appropriate legislative body, considered any enforcement enhancing technology to help conserve fuel i.e., remote speed enforcement cameras and/or remote traffic light cameras? **Yes** **No**
   Comments: _____
   _____

10. Is your agency considering the conversion of patrol cars from gasoline to propane or compressed natural gas to stabilize the fuel budget? **Yes** **No**
    Comments: _____
    _____

11. Does your agency mandate frequent use of equipment or sobriety checkpoints as a fuel conservation measure? **Yes** **No**
    Comments: _____
    _____

12. The Wiltshire England Police Department is currently using several Lexus GS 450h Hybrid vehicles as patrol cars. The high performance 341 horse power vehicles average more than 30 miles per gallon. The extra vehicle cost is offset by the fuel savings over the life of the vehicle. Would your agency consider spending more on vehicles with significantly better mileage to overcome the instability of fuel costs and supply? **Yes** **No**
    Comments: _____
    _____

13. Has your agency considered the purchase of any non-traditional vehicles for patrol purposes even at a higher initial cost to reduce the affect on the agency of spiking fuel costs or limited fuel supply? **Yes** **No**
    Comments: _____
    _____

Thank you for your time and effort put into the survey. A copy of the survey results and the associated research paper provided upon request. **Please return the completed survey on or before January 10, 2009 by email to robertduncan@flhsmv.gov or fax 386-736-5379.** Thank you again.

APPENDIX B

SURVEY DATA

SURVEY DATA

State Agency	#Sworn	Question CVPI	1 Charger	Impala	Other	2	3	4	5	6	7	8	9	10	11	12	13
Alaska	280	108	1	0	93	Y	N	N	Y	N	N	N	Y	N	N	Y	N
Arkansas	544	106	281	137	0	N	N	N	Y	N	N	N	N	N	N	N	N
Arizona	1102	985	0	20	256	Y	N	N	N	N	N	N	Y	N	N	N	N
California	7310	2128	32	0	0	N	N	N	Y	N	N	N	N	N	N	N	N
Colorado	740	438	50	2	96	Y	N	N	N	N	N	N	Y	N	N	N	N
Connecticut	1287	1115	14	1	1	Y	N	N	N	N	N	N	N	N	N	N	N
Delaware	648	393	12	0	0	Y	N	N	Y	N	N	N	N	N	N	N	N
Florida	1715	1850	102	25	73	Y	N	N	N	N	N	N	N	N	Y	Y	N
Georgia	1025	870	80	50	0	Y	N	N	N	N	N	N	N	N	N	N	Y
Illinois	2113	1026	3	283	239	N	N	N	N	N	N	N	N	N	N	Y	N
Indiana	1317	1123	0	0	43	N	N	Y	Y	N	N	N	N	N	N	N	N
Kansas	500	500	0	0	0	N	N	N	Y	N	N	N	N	N	N	N	N
Kentucky	915	1527	0	0	0	Y	N	Y	Y	N	N	N	N	N	N	Y	Y
Louisiana	1100	600	0	100	45	N	N	N	Y	N	N	N	N	N	N	N	N
Maryland	1585	1200	8	0	0	N	N	N	Y	N	N	N	N	N	N	N	N
Mass.	2371	1500	45	5	0	N	N	N	N	N	N	N	N	N	N	N	N
Michigan	1750	600	10	4	100	Y	Y	N	Y	N	N	N	N	N	N	N	N
Minnesota	551	644	1	209	0	Y	N	N	N	N	N	N	N	N	N	Y	N
Mississippi	633	522	22	0	89	N	N	N	Y	N	N	N	N	N	N	N	N
Missouri	1148	673	0	0	22	N	N	N	Y	N	N	N	N	N	N	Y	N
Montana	223	107	8	107	14	Y	N	N	N	N	N	N	N	N	N	Y	N
Nebraska	480	?	?	0	0	N	N	N	Y	N	N	N	N	N	N	N	N
New Hamp	383	230	70	0	0	Y	N	N	N	N	Y	N	N	N	N	Y	Y
New Jersey	3020	988	26	218	1100	N	Y	N	N	N	N	N	N	N	N	N	N
New Mex	605	491	5	103	90	Y	N	N	N	N	N	N	N	N	N	N	N
New York	4939	701	3	1	526	N	N	N	N	N	N	N	Y	N	N	Y	Y
N. Carolina	1800	1030	453	93	239	Y	N	N	Y	N	N	N	N	N	N	N	N
N. Dakota	142	100	8	16	27	N	N	N	N	N	N	N	N	N	N	Y	Y
Ohio	DNR	997	12	0	12	N	N	N	Y	N	N	N	N	N	N	N	N
S. Carolina	DNR	901	106	103	58	N	N	N	N	N	N	N	N	N	N	N	N
Texas	2500	1451	27	9	281	N	N	Y	Y	N	N	N	N	N	N	N	N
Vermont	327	187	2	24	3	Y	N	N	N	N	N	N	N	N	N	Y	N
Virginia	2000	1400	63	600	0	Y	N	N	Y	N	N	N	N	N	N	N	N
W. Virginia	657	500	6	100	51	N	N	N	Y	N	N	N	N	N	Y	N	N

State Agency	#Sworn	Question CVPI	1 Charger	Impala	Other	2	3	4	5	6	7	8	9	10	11	12	13
Wisconsin	485	400	15	28	42	Y	N	N	N	N	N	N	N	N	N	Y	N
Wyoming	207	87	42	40	41	N	N	N	Y	N	N	N	N	N	N	N	N
36 Agencies		27,478	1,507	2,269	3,541												
		79%	4%	7%	10%												